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SUBJECT: CHEMICAL WEAPONS CONVENTION (CWC): GUIDANCE FOR
GOVERNMENT EXPERTS MEETING TO CONSIDER SCIENTIFIC
ADVISORY BOARD REPORT TO THE SECOND REVIEW CONFERENCE

REF: A. NOTE BY THE TECHNICAL SECRETARIAT S/723/2008
DATED 15 DECEMBER 2008.

[1](#)B. NOTE BY THE DIRECTOR-GENERAL RC-2/DG.1 DATED 28
FEBRUARY 2008.

[1](#)C. NOTE BY THE DIRECTOR-GENERAL RC-2/DG.1/CORR.1
DATED 5 MARCH 2008.

[1](#)1. Guidance in paragraphs 6-8.

Overview

[1](#)2. This cable provides information and guidance to the U.S. delegation for use during 11-13 February 2009 meeting of government experts to consider the report submitted by the Scientific Advisory Board (SAB) to the Second Review Conference. The meeting,s objective is to consider the report,s suggestions and recommendations and prepare a report for submission to the Executive Council. The outcome of the meeting should be a lucid, objective report that provides recommendation to the Council for future SAB efforts and associated Secretariat support.

[1](#)3. Ref A announced the meeting and called on States Parties to nominate government experts to attend the meeting. The U.S. plans to send Richard D,Andrea (DOS), Thomas Cataldo (DOD), and Larry Denyer (DOC). Armando Alcaraz (LLNL) will also attend as an advisor. Refs B and C provide the Director-General,s assessment of the issues covered by the SAB in its report and Ref B includes the subject report.

[1](#)4. The SAB report provides a thorough assessment of advances in science and technology and their implications for the CWC. In general, the report a) characterizes broad trends with implications for the CWC, b) reports on specific issues, many of which were reviewed at the request of the Director-General, and restates recommendations made; and c) reports on ongoing developments and identified needs in verification technology, international cooperation and assistance, and public outreach.

[1](#)5. The SAB report and the Director-General,s assessment are divided into six main topics: (1) Advances in science and technology, (2) Schedules of chemicals, (3) Verification, (4)

Destruction of chemical weapons, (5) Assistance and Protection against the effects of chemical weapons, and international cooperation, and (6) Education and outreach in the context of the Convention. The previous meeting to discuss the SAB report to the First Review Conference was unproductive due largely to an overly broad agenda and a dearth of genuine experts. This three day meeting to discuss these wide ranging topics is fraught with opportunities for technical and political mischief making. The difficulty will be in keeping the meeting focused on providing direction for future SAB deliberations of meaningful and practical issues

and avoiding technical and political dead ends.

Guidance

¶6. Delegation should endeavor to keep the meeting focused on the agenda and promote U.S. positions such that the meeting report reflects U.S. views for future SAB efforts on meaningful and practical issues.

¶A. Specifically, the SAB should further assess:

- the convergence of chemistry and biology to determine near-and medium-term implications for the CWC,
- whether saxitoxin should be moved to Schedule 2A,
- methods for the analysis of toxins, and
- advances in science and technology that provide for enhanced protection from chemical weapons and international cooperation and assistance.

¶B. Additionally, the SAB should monitor:

- developments in the discovery of new chemicals in the chemical industry,
- developments in chemical production technology,
- the combination of nanotechnology and particle delivery technologies,
- advances in analytical methods such as liquid chromatography) mass spectrophotometry,
- developments in new detection technologies, and
- developments in education and outreach especially those coming out of collaborative efforts between the OPCW and professional and trade organizations.

¶C. Del should avoid:

- discussion of chemical weapons destruction deadlines,
- debate on the relevance of the term &nonproliferation8 as it applies to the CWC,
- using the term, non-lethal weapons, when discussing incapacitants or toxic chemicals for law-enforcement,
- any discussion related to the recent disclosure of Non-traditional Agents (NTA) information,
- debate on adding a new class of chemical weapons to the schedules, and
- any topics not directly associated with the agenda.

¶D. Del should oppose the notion of establishing a standing group of government experts to review SAB recommendations. Del should draw on overview and the more detailed analysis below regarding U.S. views during discussions with the other government experts and the Technical Secretariat.

¶7. U.S. Objective. The U.S. objective for this meeting is a lucid, objective report that provides recommendations to the Council for future SAB efforts and associated Secretariat support focused on the assessment and monitoring topics above. However, Del should oppose completion of a report that contains problematic text, and may propose or support a proposal that such a report not be finalized.

¶8. The Del should report results of the discussions by cable to Washington. Notify Washington immediately if the NTA disclosure is raised.

Analysis

¶9. This section summarizes the report,s suggestions and recommendations and outlines a U.S. position or a way forward for each topic that may be discussed.

¶A. Advances in Science and Technology

(1) Convergence of chemistry and biology. The report mentions, but does not elaborate in any detail on the convergence of chemistry and biology in the post-genomic era along with the emerging ability to replicate life processes. This convergence reinforces the overlap between the CWC and the Biological and Toxin Weapons Convention, as does the

increasing number of toxins and potentially toxic bioregulators being characterized. The DG is of the view that this matter warrants further study and that additional advice might be sought from the SAB, from States Parties that have assessed these developments, and from stakeholders in industry and academia; and such additional advice might be considered by the policy-making organs in due course.

(2) Accelerated discovery of chemicals. The report notes that biologically active molecules are being discovered and characterized at an unprecedented rate, however, weaponizing a new toxic compound would require a major offensive program which somewhat mitigates the risk. The U.S. agrees and the SAB should continue to monitor this topic.

(3) Nanotechnology. Legitimate, non-offensive work in the expanding field of nanotechnology and particle engineering offer opportunities to develop defensive measures against chemical weapons. However, a number of important and useful advances could potentially be misused for chemical weapons (CW) purposes (see paragraph (4) below). This underscores the importance of strict adherence to the general purpose criterion (Article I), and the need for effective national implementation measures that complement the CWC to help ensure that chemicals, enabling technologies and materials that have a CW proliferation potential are sufficiently regulated.

(4) Technology for delivery systems. Many of the considerations that promote the design of particles for the effective and targeted delivery of drugs via the respiratory system would be applicable to the dissemination of a CW aerosol. The spray-drying equipment needed to create such particles is widely available, although the optimization of a well-engineered particle requires expertise and considerable effort. The combination of nanotechnology and particle delivery technologies could be misused for CW purposes and developments warrant continued monitoring by the SAB.

(5) Production technologies. The SAB points out that new production technologies such as use of microreactors, and multipurpose production equipment could make CW production more efficient and/or mask currently known signatures indicative of CW production. However, the report also notes that microreactors are not yet widely used in industry, and they are being integrated into industrial-scale production more slowly than some had predicted. As production technologies change and the number of potential CW agents increases, verification at other chemical production facilities (OCPF) and the frequency of inspections becomes more important. This regime needs to evolve further in terms of the number of inspections conducted, the selection of OCPF plant sites, and how inspection objectives are determined with regard to unscheduled chemicals in order to ensure compliance and that such sites are not being used for purposes prohibited under the CWC. The U.S. strongly supports increased OCPF inspections and improved OCPF site selection methods, however, consideration of how inspection aims are determined requires further elaboration and then would require careful consideration in Washington. Developments in chemical production technologies are an important topic that the SAB and the Technical Secretariat should closely monitor (&watching brief8) as developments warrant.

1B. Schedules of Chemicals

(1) Captive use of Schedule 1 chemicals. The SAB sees no need for adjustments to Schedule 1 to accommodate captive use issues. The U.S. considers this issue to have been fully addressed by previous Conference decisions and sees no need for further discussion.

(2) Salts of scheduled chemicals. The SAB reiterates its view that &from the standpoint of the end user, there is no essential difference between the free base and the corresponding salt,⁸ and acknowledges that States Parties have disagreed with its recommendations that all salts of scheduled chemicals be treated in the same way as their corresponding bases. The U.S. position is that only salts of scheduled chemicals specifically listed in the Schedules of Chemicals are currently covered. The schedules would need to be revised if the salts were to be included. Furthermore, the current U.S. position is that it is not particularly

useful to modify the schedules given the potential problems that could be raised with regard to incapacitants or NTA.

(3) Chemical Abstracts Service (CAS) Registry Numbers. The SAB view is that CAS numbers are useful in the identification of chemical compounds; however, this usefulness should not lead to the assumption that they should have any regulatory power within the context of the Convention. The SAB suggests that it would be helpful, if the OPCW Declaration Handbook were to provide references to the various CAS numbers that are related to an entry in the schedules such as for different isomers of a scheduled chemical. The U.S., for CWC purposes, treats CAS numbers listed in the schedules as having regulatory effect. While the listing of related CAS numbers in the OPCW Declaration Handbook may be helpful the U.S. recognizes that CAS numbers do not necessarily have a one-to-one relationship with chemical structures.

(4) The SAB raises saxitoxin as an example of both the salt and CAS number questions pointing out that the CAS number in the CWC refers to the saxitoxin base while the CW agent of concern was the hydrochloride salt. The SAB also notes past discussions of whether Schedule 1 or Schedule 2A would be more appropriate for saxitoxin, makes no recommendations, and agreed to take the matter up at a future Session. The U.S. agrees.

(5) Ricin. Ricin has multiple molecular forms and multiple CAS numbers. The Director-General asked the SAB to consider what, within the meaning of the Convention, constitutes ricin. The SAB proposed that ricin requires the native bipartite molecular structure, A-S-S-B, necessary for mammalian toxicity, be present. Once the inter-chain S-S bond is broken or the protein denatured, it is no longer ricin. The U.S. supports the SAB view and for CWC purposes considers as declarable only ricin in the form of 1) Ricinus Communis Agglutinin II (RCA II), also known as ricin D or Ricinus Communis Lectin III (RCL III); and 2) Ricinus Communis Lectin IV (RCL IV), also known as ricin E.

(6) New toxic compounds. The SAB view is that adding a large number of new toxic compounds to the schedules of chemicals would introduce additional burdens on reporting requirements and verification. The SAB instead calls for transparency in chemical defense programs and assessment of the development of toxic chemicals for law-enforcement purposes. The SAB concludes that non-lethal chemicals and the associated terminology surrounding so-called incapacitants require further study. The U.S. agrees with the SAB that adding numerous new toxic compounds to the schedules would introduce additional burdens on reporting requirements and verification. The U.S. also supports further assessment of the development and availability of toxic chemicals such as incapacitants for law-enforcement. The SAB should be asked to specify or further elaborate on which toxic chemicals they had in mind as they considered the subject of increased transparency in the area of new toxic compounds.⁸

1C. Verification

(1) On- and off-site sampling and analysis. The SAB view is that GC-MS in combination with the OPCW dual-mode software containing the OPCW Central Analytical Database (OCAD) are fit for purpose⁸ and acknowledges that liquid chromatography-mass spectrometry (LC-MS) has utility in analysis of aqueous samples on-site. However, LC-MS in its current design would only increase the logistic burden of on-site analysis while the Secretariat is trying to reduce the burden. The SAB recommends that it closely monitor LC-MS developments. The U.S. agrees.

(2) Proficiency tests. The SAB notes the success of the current system of proficiency testing used for designated laboratories and those seeking designation. The SAB points out, however, that current proficiency test protocols require that spiked samples and blank samples be labeled as such, but in real cases of off-site analysis such labeling would not be used. The SAB recommends that the proficiency test format be changed to accurately reflect how real samples would be handled. The SAB further recommends that the OPCW consider establishing a process whereby all sample handling, waste management, and confidentially procedures be practiced more regularly. The U.S. supports this view.

(3) Analysis of toxins. Analysis of toxins is difficult

because GC-MS methods do not work. Analytical methods exist for saxitoxin and ricin, and the SAB recommends that the OPCW determine which designated labs have those capabilities. The SAB further recommends that if the overall capability is deemed inadequate, then the Director-General should consider utilizing laboratories outside the designated laboratory system. This appears to be an obvious course of action, however, it raises quality control, cost, and confidentially issues that the SAB should identify and carefully consider further.

(4) OPCW Central Analytical Database (OCAD). In certain scenarios, particularly those involving allegations of alleged use, the capability to analyze riot control agents and degradation products of scheduled compounds is important in the context of verification. The SAB recommends that riot control agents (RCA) and degradation products of scheduled chemicals be added to the OCAD. The U.S. has long supported this position.

(5) Analysis of biomedical samples. The SAB points out that the OPCW has no capability to handle or analyze such samples and there is no system of designated laboratories for the analysis of biomedical samples. The SAB Temporary Working Group (TWG) on biomedical samples recommended that the OPCW Laboratory & move forward on the issue of biomedical sampling and analysis,⁸ and that the Director-General make sufficient resources available to initiate and maintain the process. The OPCW Laboratory has initiated efforts to determine what information, training, and equipment would be required to acquire this capability. The U.S. endorses this effort.

D. Destruction of Chemical Weapons

(1) Destruction of declared CW stockpiles. The SAB concludes that technologies used in the destruction of declared CW stockpiles appear to have matured to a point where implementation of the requirements of the Convention requires no further technological innovation or development. The U.S. concurs.

(2) Destruction of Old and Abandoned CW (OACW). The SAB notes that further research and development are needed for the safe recovery of OACW both by excavation and by removal from the sea at relatively shallow depths. The SAB also notes that there is a continuing need for innovation in and new approaches to, the destruction of recovered items. The U.S. concurs.

E. Assistance and Protection Against the Effects of CW, and International Cooperation

(1) Advances in science and technology. The SAB notes that advances in the life sciences, information technology, materials science, and nanotechnology have the potential to help States Parties improve the level of protection they can offer against chemical weapons. Effective defense should discourage the development and use of CW. Enhanced international cooperation in this field can act as an incentive for States not Party to join the Convention. The SAB should further explore this topic and identify specific examples for enhanced international cooperation.

(2) Detection devices. The SAB acknowledges the considerable amount of time and effort required to transfer a new detection technology from laboratory instrumentation to a reliable and robust field-detection device. The SAB opines that technologies that have already matured will continue to play a key role in the detection of CW agents over the next five years and further speculates on other potential technologies that may greatly expand the effectiveness of inspections in the future given the appropriate design and cost factors. The U.S. encourages the SAB to continue to monitor the developments of such technologies.

(3) Medical countermeasures. The SAB notes that improvements are necessary both in available treatments (for example, antidotes that can be used against a broader range of agents), and in the planning of medical countermeasures and the management of casualties. Current emergency-response procedures can be time-consuming and can delay the treatment of victims. Best practices need to be identified and followed, and training exercises are essential to maintaining the required level of preparedness. This common sense analysis warrants no further discussion.

(4) Decontamination. The SAB notes that decontamination requirements are taking account of the changing nature of

such operations, which are more likely to take place in urban areas and to affect civilians directly. Standard military decontamination technology is often not appropriate under such conditions or for decontamination of some industrial chemicals. There is a need for smaller and easier-to-transport decontamination equipment that requires fewer personnel to operate it. Decontaminates should be environmentally friendly, less corrosive, and less aggressive. Advances in science and technology are expected to contribute to further improvements in the field of decontamination and medical treatment of CW victims. This analysis warrants no further discussion.

1F. Education and Outreach in the Context of the Convention

(1) Workshops, conferences and seminars. The report lists the major CWC workshops, conferences and seminars dating back to 2005 citing OPCW and International Union of Pure and Applied Chemistry (IUPAC) efforts in a number of European countries. The U.S. encourages further collaborative outreach efforts between the OPCW and professional and trade organizations such as IUPAC, The European Chemical Industry Council (CEFIC), The American Chemistry Council (ACC), and the like.

(2) Written materials. The report cites written materials that have been prepared on the issue of the multiple uses of chemicals and the ethical questions it gives rise to. The SAB opines that joint OPCW-IUPAC pilot studies have confirmed the validity and usefulness of these materials, which have been subsequently updated. Further pilot studies are being considered and plans are being made for the written materials to be translated into the six official CWC languages and to be made available on the IUPAC website. The SAB should continue to monitor such educational and outreach efforts.

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